



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of WOODS

Serial Number 09/534,474

Filed March 24, 2000

For: USER FRIENDLY KEYBOARD

)  
) Art Unit: 2673  
)  
) Examiner: Lao  
)  
) Atty Docket: WOO001

CERTIFICATE OF MAILING

Assistant Commissioner of Patents  
Washington, D.C. 20231

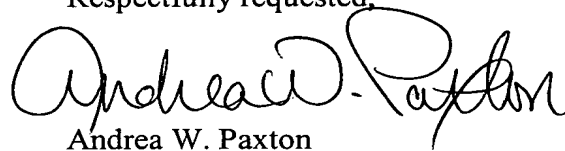
Dear Sir:

I hereby certify that this document and the accompanying Appeal Brief (in triplicate) and a check in the amount of \$160.00 for the application identified above is being deposited with the United States Postal Service in an envelope addressed to:

Assistant Commissioner for Patents  
Washington, D.C. 20231

On September 25, 2002

Respectfully requested,



Andrea W. Paxton

Date: September 25, 2002  
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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For: USER FRIENDLY KEYBOARD

**APPLICANT'S APPEAL BRIEF**

Assistant Commissioner of Patents  
Washington, D.C. 20231

Dear Sir:

The Applicant of the above-identified U.S. patent application submits this Appeal Brief in support of an appeal from the final rejection of claims 1, 2, 7-10, 12, 13 and 15-22 in this application. The fee required under 37 C.F.R. §1.17(c) accompanies this brief.

**REAL PARTY IN INTEREST**

The above-identified patent application has not been assigned but rather is completely owned by the sole independent inventor of this application.

**RELATED APPEALS AND INTERFERENCES**

There does not exist any known related appeals or interferences which would directly affect or be directly effected by, or have a bearing on the decision in this case.

**STATUS OF CLAIMS**

Claims 1, 2, 7-10, 12, 13 and 15-22 stand finally rejected and are herewith appealed. Claims 3, 5 and 6 have been objected to as being dependent upon a rejected

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base claim, but indicated as being allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. Claims 4, 11 and 14 have been canceled. Claims 1, 2, 7, 13 and 16 were amended on July 11, 2001; claims 1, 2, 5, 7, 12, 13 and 16-18 were amended on November 8, 2001; and claims 1 and 13 were further amended on April 11, 2002. Therefore, claims 1 and 13 have been amended three times; claims 2 and 7 have been amended twice; claims 5, 12 and 15-18 have been once amended; claims 3, 6, 8-10, 19 and 20 remain as originally filed; claims 21 and 22 were added during the prosecution of the application; and claims 4, 11 and 14 have been canceled.

**STATUS OF AMENDMENTS**

No amendments to the claims have been made to the application after the final rejection dated April 29, 2002.

**SUMMARY OF THE INVENTION**

The present invention is directed to a keyboard including keys arranged in a series of rows particularly configured to enable a user to most rapidly master the location of the individual keys and also increase typing speed. The invention is presented in the application with four independent claims. More particularly, claim 1 represents a combination claim including all the limitations of independent claims 2, 7 and 13 which, in turn, represent sub-combination claims.

Before discussing the particular limitations in these various claims, it should be realized that the common QWERTY keyboard is an industry standard which was specifically designed to address a jamming problem occurring in old style typewriters having letter hammers which would jam when a typist became too proficient. That is, the QWERTY keyboard was designed to slow the typist down, thus preventing the hammers from jamming. In connection with the QWERTY keyboard, the fingers are

required to travel much longer distances to utilize the most common letters in English words. Although reducing typing speed may have been of interest in prior manual typewriters, modern day computers do not have the corresponding problems such that a QWERTY type keyboard is an impediment to faster typing and, given that the fingers must extend rather long distances to engage most common letters in those keyboard arrangements, typing injuries are becoming more and more prevalent.

The present Applicant is herself a typist and has developed several advantageous features associated with the overall keyboard of the present invention to overcome the drawbacks associated with both conventional QWERTY keyboards, as well as other arrangements proposed in the art. To this end, independent claim 2 is particularly directed to a keyboard including a plurality of letter keys arranged in rows, with at least one of the rows of letter keys being arranged to spell out at least three, consecutively arranged multi-letter words when read from left to right. In accordance with the most preferred embodiment of the invention, the multi-letter words "READ ON THIS" are utilized. These letters encompass all the most commonly utilized letters in the English alphabet. By arranging these common letters on the row, the fingers of the user only have to travel a minimal distance in spelling a majority of English words. However, it is also important to note that providing at least three, consecutively arranged multi-letter words when read from left to right as specified in accordance with claim 2, a user of the keyboard of the present invention can almost instantaneously remember the positioning of the letter keys in this row. Therefore, unlike a QWERTY keyboard which has the letters jumbled and which takes a substantial amount of time to master the various locations thereof, setting forth three, consecutively arranged multi-letter words in one of the rows of the keyboard, when read from left to right, enables even young students to readily master the present keyboard.

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In connection with a second aspect of the invention, as set forth in independent claim 7 and associate dependent claims 8-10 and 12, backspace and tab keys are centrally located within a set of letter keys and in a row above the home row. These keys are located in this manner to advantageously permit easier activation of these keys, thereby heading to the enhanced user friendly typing experience of the overall keyboard. That is, use of these keys is becoming more prevalent such that the QWERTY keyboard positions are considered disadvantageous, particularly with respect to the long finger (pinky) stretch required to engage a backspace key. In accordance with the invention, only a short, index finger repositioning is required.

A still further aspect of the present invention concerns the arrangement of a plurality of Shift keys which are located in a lower central portion of an array of keys, with the Shift keys being grouped directly adjacent one another and extending in at least two rows at locations adapted to be engaged by thumbs of a user. Therefore, claim 13 requires, in addition to letter keys corresponding to respective letters of an alphabetical language, a tab key and a backspace key, at least three Shift keys for establishing capital letters in combination with the letter keys. The Shift keys must be specifically located on a lower central portion of the array, grouped directly adjacent one another, and arranged in at least two rows, while being adapted to be engaged by thumbs of a user. Further dependent claims specify that there are four adjacent Shift keys arranged in two different rows, while being color coded and located in a lowermost key position of the overall array.

As indicated above, independent claim 1 sets forth all of the sub-combination features in a single claim. All these features combine to provide an extremely user friendly, keyboard to ensure an enhanced typing experience, enable greater typing speeds, minimize finger movements in order to increase typing fluidity and reduce injuries, and enable the keyboard to be easily learned.

**ISSUES**

1. Whether or not claims 1 and 13-20 are properly rejected under 35 U.S.C. §112, first paragraph as containing subject matter not described in the specification in a way which reasonably conveys that the inventor of the present case had possession of this subject matter.

2. Whether or not claims 7-10, 12 and 21 are patentable under 35 U.S.C. §103 in view of:

- a) Watanabe et al. (JP08249097) in view of
- b) U.S. Patent No. 5,739,776 to Chen.

3. Whether or not claims 13, 15, 16, 18 and 19 are patentable under 35 U.S.C. §103 in view of:

- a) Watanabe et al. in view of
- b) Harada et al. (U.S. Patent No. 6,107,994); and
- c) Microsoft Press Computer Dictionary (3<sup>rd</sup> Edition).

4. Whether or not claim 17 is patentable under 35 U.S.C. §103 as being unpatentable in view of:

- a) Watanabe et al. in view of
- b) Harada et al. in view of
- c) Microsoft Press Computer Dictionary (3<sup>rd</sup> Edition) in view of
- d) Maynard et al. (U.S. Patent No. 5,557,299).

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5. Whether or not claim 1 is patentable under 35 U.S.C. §103 in view of:

- a) Watanabe et al. in view of
- b) Harada et al. in view of
- c) Microsoft Press Computer Dictionary (3<sup>rd</sup> Edition) in view of
- d) Montgomery (U.S. Patent No. 4,211,497).

6. Whether or not claims 2 and 22 are patentable under 35 U.S.C. §103 in view of:

- a) U.S. Patent No. 5,620,267 to Klauber in view of
- b) Montgomery (U.S. Patent No. 4,211,497).

The Applicant disagrees with the positions taken by the Examiner for at least the following reasons:

1) None of the known prior art, either taken singly or in combination, discloses the particular arrangement of three, consecutively arranged multi-letter words when read from left to right;

2) None of the prior art either taken singly or in combination discloses a keyboard having an array of letter keys within which both tab and backspace keys are centrally located in a row above a home row;

3) None of the prior art either taken singly or in combination discloses a keyboard having a multitude of keys including at least three Shift keys located in a lower central portion of the array, with the Shift keys being grouped directly adjacent one another, arranged in at least two rows, being adapted to engage by a thumb of a user, and used to establish capital letters in combination with letter keys;

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4) The Examiner has incorrectly introduced undue subjective opinion concerning the patentability of subject matter in this field in rejecting the claims based on prior art which does not disclose or suggest the claimed subject matter;

5) The Examiner has incorrectly made modifications to prior art arrangements concerning the repositioning of keys without any requisite teachings in the prior art; and

6) The Examiner has improperly used hindsight to pick and choose select teachings in prior art references in making the combinations presented, instead of utilizing the teachings of the references as a whole to determine what would be obvious to one of ordinary skill in the art.

**GROUPING OF CLAIMS**

Claims 1, 2, 12, 15, 16 and 19-22 are considered to be independently patentable;

Claims 7-10 stand or fall together upon a determination of the issue of obviousness of independent claim 7; and

Claims 13, 17 and 18 stand or fall together upon a determination of the issue of obviousness of independent claim 13.

**ARGUMENTS**

**I. Brief Legal Analysis**

The test for patentability under 35 U.S.C. §103 is basically whether the differences between the claimed subject matter, considered as the whole, and the prior art would have been obvious at the time the invention was made. Reaching this determination, the skill and content of the prior art, the differences between the prior



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art and the claimed subject matter and the level of ordinary skill in the art must be considered, along with the relevant secondary issues. *Graham v. John Deere Co.*, 381 U.S. 1, 148 USPQ 459 (1966).

A proper rejection under 35 U.S.C. §103 cannot be based on hindsight knowledge of the invention under consideration for the sole basis of attempting to meet the recitations of the claims. Specifically, the CAFC in *Environmental Designs, Ltd. v. Union Oil Co. of Cal.* 218 USPQ 865, 870 (1983) stated:

*All the pieces of the present invention were known in the art, ... That all elements of an invention may have been old (the normal situation), or some old and some new, or all new, is however, simply irrelevant. Virtually all inventions are combinations and virtually all are combinations of old elements. A court must consider what the prior art as a whole would have suggested to one skilled in the art (Case citations).*

Further, the CAFC in *In re Gordon*, 221, USPQ 1125, 1127 (1984) stated:

*The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification. (Case citations.)*

Furthermore, the CAFC in *American Hoist & Derrick Co., v. Sowa & Sons, Inc.*, 220 USPQ 763, 771 (1984) quoted:

*A patentable invention... may result even if the inventor has in effect, merely combined features, old in the art, for their known purpose, without producing anything beyond the results inherent in their use. (Emphasis theirs.)*

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Similarly, the Court of Appeals for the Federal Circuit *In re Sernaker*, 702 F.2d 989, 217 USPQ 1, 5 (1983) stated:

*We may assume, for purposes of this decision, that all the prior art references in this case are sufficiently related to one another and to a related and common art, that the hypothetical person skilled in the art must be presumed to be familiar with all of them. That being so, the next questions are (a) whether a combination of the teachings of all or any of the references would have suggested (expressly or by implication) the possibility of achieving further improvement by combining such teachings along the line of the invention in suit, and (b) whether the claimed invention achieved more than a combination which any or all of the prior art references suggested, expressly or by reasonable implication.*

References must be evaluated by ascertaining the facts fairly disclosed therein as a whole. It is impermissible to first ascertain factually what [applicant] did and then view the prior art in such a manner as to select from the random facts of that art only those which may be modified and then utilized to reconstruct applicant's invention from such prior art. *In re Shuman and Meinhardt*, 150 USPQ 54 (CCPA 1966).

If the modifications are suggested by the Examiner in order to achieve the claimed invention would destroy the fundamental characteristics of the base reference, the rejection is improper. *In re Rosin* 673 F.2d 388, 213 USPQ 247.

The burden is upon the Patent Office to supply the factual basis supporting the rejection. It must be shown why a person skilled in the art would find it obvious to depart from the teachings of a reference, when the issue is an obvious matter of choice. *Lipscombe's Walker on Patents*, Vol. 4, Section 12:14, page 45, citing *In re*

*Warner*, 379 F.2d 1011, 154 USPQ 173 (1967), *In re Bezombes*, 420 F.2d 1070, 164 USPQ 387 (CCPA 1970).

Therefore, it is clear that it is the PTO that has to establish a prima facie case of obviousness and "obvious can not be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentives supporting the combination." *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984) and *Ray Geiger*, 815 F.2d 686 (Fed. Cir. 1987). It is also important to note that the mere fact that the prior art disclosures might suggest to one of ordinary skill in the art to try various combinations of known elements does not establish a prima facie case of obviousness under 35 U.S.C. §103. *Ray Geiger supra*.

The moving of a particular item in a device which does not modify the operation of the device may be obvious under a given set of circumstances. *In re Japikse*, 86 USPQ 70 (CCPA 1950). However, as a corollary, the moving of an object on a device which does modify the operation of the device is not obvious absent a specific teaching in the art to this effect.

## II. Formal Rejection

### A. Rejection of Claims 1 and 13-20 under 35 U.S.C. §112, first paragraph

Claims 1 and 13-20 have been newly rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonable convey to one skilled in the relevant art that the inventor, at the time the invention was filed, had possession of the claimed invention. Specifically, the Examiner alleges:

"The recitation of 'at least three shift keys for establishing capital letters in combination with the letter keys' cited has not been disclosed in the specification. The specification only disclosed shift keys (10, 12, 14, 15) performing different functions by cooperating with the keys (see page 7 and lines 10-17)"

The Applicant strongly objects to this characterization and directs the Examiner's attention to page 7, lines 5-9 wherein the specification specifically states:

"Generally confined to a rectangular area, the shift key zone 8 includes shift or control keys 10, 12, 14 and 15. The left shift key 10 and the right shift key 12 are at the top of the rectangle, with the shift key 14 at the left bottom and the shift key 15 at the right bottom of the rectangle. **Each of the keys in the shift command key zone 8 is in a manner generally analogous to the shift keys in the standard keyboard. For example, when the shift key 14 is depressed at the same time as another key, that key takes on a different function"** (bold emphasis added).

It is respectfully submitted that the specification thus reasonably conveys to one skilled in the relevant art that the inventor at the time the application was filed knew that a shift key will change a letter key so that when the letter key is depressed, a capital is produced as opposed to a lower case letter. The Examiner's attention is also drawn to page 20, lines 1-5 specifically beginning at line 2 which states that, when a letter key 96-121 is pressed alone, a lower case letter character is inserted. When letter key 96-121 is pressed along with a Shift key 10 or 12, a capital letter character is inserted. Indeed, it is unclear just how more specific the specification needs to be to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

Based on the above, it is unclear why the Examiner has taken this position. In any event, regardless of any disclosure on this aspect of the invention, it is respectfully submitted that nearly each and every person who has had any connection with computers, which typically starts in about fourth grade in the United States, would readily know and understand the function of a Shift key on a keyboard. Therefore, it is respectfully submitted that simply disclosing that the present invention incorporates a Shift key would enable one of ordinary skill in the art to understand that the same can be used in combination with letter keys to present capital letters. In any event, the specification is seen to provide clear antecedent basis for the subject matter such that it is respectfully submitted that this rejection is misplaced.

**III. Rejections Based on Prior Art**

(Generally discussed in the order presented in the rejection by the Examiner)

**A. Rejection of Claims 7-10 based on Watanabe et al. in View of Chen**

First of all, it should be noted that independent claim 7 was not amended between the rejection presented on January 11, 2002 and the final rejection presented on April 29, 2002. Regardless of this fact, the rejection presented by the Examiner has changed as the patent to Chen was never relied upon in the earlier Office Action. However, as it is believed that the prosecution in this case has been unjustifiably prolonged in that the Applicant has received at least four Office Actions on the merits, with none of the main references utilized in the first two Office Actions finding correspondence in the latter Office Actions, such that proceeding with this Appeal is considered to be appropriate regardless of the improper finality presented in this case. In any event, the Examiner is essentially holding that the Watanabe et al. reference teaches a keyboard including all the limitations of claim 7 but fails to have the tab key located on the same row as the backspace key. For this feature, the Examiner is relying on the teachings in Chen.

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Based on the Applicant's understanding of the Watanabe et al. reference, the tab key is located on the right most part of a left section 2 and the backspace key is located in an upper most row of the keyboard and at a left most side of a right portion 3 of the keyboard. This is taken in reference to Figure 1, the brief English abstract provided by the Examiner and the comments made by the Examiner regarding the teachings in this reference. The Examiner then refers to the '776 Chen patent in indicating that backspace key 16 is located directly adjacent tab key 15. Based on this teaching in Chen, the Examiner holds that it would be obvious to reposition the backspace key in Watanabe et al. down a row.

It is respectfully submitted that this combination overlooks various factors. First of all, it is respectfully submitted that Chen actually teaches to locate backspace and tab keys in a space or gap between letters and other keys and at a lowermost position of the keyboard, directly above a space bar. Considering the teachings in Chen et al., it is respectfully submitted that this patent does not suggest to one of ordinary skill in the art to simply drop the backspace key in Watanabe a single row so that the same can be next to a tab key. Instead, it is submitted that this combination is only being presented based on hindsight of the present invention and without considering the teachings in Chen as a whole. More specifically, it should be noted that the keyboard disclosed by Chen includes a left key switch unit 11 and a right key switch unit 12 which is seen to be generally analogous to left keyboard portion 2 and right keyboard portion 3 in Watanabe et al. Chen specifically discloses the desire to arrange the tab key 15 and the backspace key "in the chamber 14 between the left key switch unit 11 and the right key switch unit 12 behind the space bar 13..." This is stated to enable the tab key 15 and the backspace key 16 to be operated without lifting hands of the user from wrist pad 19. Therefore, Chen would not suggest to one of ordinary skill in the art to modify Watanabe in the manner suggested by the Examiner but rather would specifically suggest, if at all, to space sections 2 and 3 in Watanabe et al. and to arrange the tab keys and backspace keys in a chamber between the left and right key blocks and directly above a spacebar.

Secondly, it must be realized that any change made to a keyboard wherein a key is moved to another location, would directly affect other keys. That is, if the backspace key in Watanabe et al. is shifted downward in the manner suggested by the Examiner, it is unclear to the Applicant what would happen to the key in that particular position at this time. This change would also have to result in the rearrangement of at least one additional key, if not a multitude of keys, in order to accommodate this particular change. It appears in Watanabe et al. that an enter key is arranged directly below the backspace key, with the enter key taking the space of over three different keys. If the backspace key is shifted downward as suggested by the Examiner, the enter key would invariably have to be removed and repositioned somewhere else on the keyboard. Given the size of the enter key, this would require substantial repositioning of many of the keys. It is simply unclear to the Applicant why one of ordinary skill in the art would even contemplate such a change.

Finally, from reviewing Figure 2 of the present application, it should be clear that the backspace and tab keys are specifically, centrally located within the array of keys. Claim 7 requires this central location. More particularly, Figure 2 shows two additional rows above these keys, as well as a similar set of rows below these keys. Furthermore, a corresponding number of keys are located on the other side of these keys. It is respectfully submitted that the backspace key in Watanabe et al., and clearly both the backspace and tab keys in Chen et al., are not centrally located in a manner corresponding to that of the present invention.

**B. Rejection of Claim 12 Based on Watanabe et al. in View of Chen**

Claim 12 requires the tab key and the backspace key to be located in a third row down from the top of the base. In any formulation set forth by the Examiner, at best, the tab and backspace keys would be located in the second row. Given the overall arrangement in Watanabe et al., there does not appear to be any way to locate the backspace key and the tab key in the third row from the top without locating them

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in the home row. Therefore, meeting the limitations of claim 12 would be directly contrary to meeting the limitations of claim 7. That is, claim 7 requires the tab and backspace key to be located in a row above the home row. Apparently, the Examiner is indicating that it would be obvious, without any teaching in the art, to reposition the tab key down one row and the backspace key down two rows such that they are located adjacent one another and in a third row down from the top. However, as indicated above, this would place the keys in the home row which is contrary to the limitations of independent claim 7 from which claim 12 depends. In addition to this incompatibility problem, it is respectfully submitted that there is absolutely no teaching to rearrange the keys in Watanabe et al. in this manner, absent the disclosure of the present application.

**C. Rejection of Claim 21 Based on Watanabe et al. in View of Chen**

A similar argument exists with respect to the limitations of claim 21 which requires the tab and backspace keys to be located in the same row above the home row. In the rejection presented by the Examiner, the tab and backspace keys in Watanabe et al. have been moved down one and two rows respectively. However, that would place these keys in the home row. Therefore, these keys could also not be located directly above the home row as required by claim 21.

**D. Rejection of Claim 13 based on Watanabe et al. in view of U.S. Patent No. 6,107,994 issued to Harada et al. and Microsoft Press Computer Dictionary (3<sup>rd</sup> Edition)**

As indicated above, independent claim 13 is particularly concerned with providing Shift keys which can establish capital letters in combination with letter keys, with the Shift keys being located in a lower central portion of an overall key array, grouped directly adjacent one another, arranged in at least two rows of the array, and positioned so as to be adapted to be engaged by thumbs of a user. In attempting



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to meet the limitations of this claim, the Examiner has relied upon references which show Shift keys adjacent Alt keys and states that it "would have been obvious to replace Alt keys by Shift keys since they both have the same function..." It is respectfully submitted that this position represents an unreasonable interpretation of the claim language and the teachings in the known prior art.

First of all, it is respectfully submitted that there is a clearly recognized distinction in the art between a Shift key and an Alt key. Aside from this conventional knowledge, it is clear that Watanabe et al. locates one Shift key and one Alt key next to each other on each of the left and right blocks. Therefore, this arrangement fails to not only provide these keys in a lower central portion as the Shift keys are spaced laterally outwardly therefrom, but there are not three Shift keys grouped directly adjacent one another. The keyboard disclosed in Harada et al. does nothing to overcome these deficiencies. That is, the Harada et al. arrangement is essentially a standard QWERTY keyboard having additional structure for specific data input. That is, Harada et al. teaches to provide Shift and Alt keys at laterally outward portions of a keyboard. If used to modify Watanabe et al., it is respectfully submitted that this reference would teach moving the Shift and Alt keys in Watanabe farther away from the central portion, and away from a position wherein they are operated by a user's thumb. Instead, both the Shift and Alt keys in Harada et al. are arranged to be engaged by the pinkies of a user. Therefore, this prior art does not lead one of ordinary skill in the art to the present invention but rather teaches away from the same.

As an additional note concerning the Examiner simply equating Shift and Alt keys based on a broadly interpreted statement in the cited Microsoft Dictionary, the Applicant has also had to overcome the Examiner equating cursor keys with Shift keys in this case. Although the Examiner has dropped this prior position, this is simply brought to the attention of the Appeal Board regarding the extremes taken by the Examiner in attempting to reject the claims in this case at each stage during the prosecution. It is respectfully submitted that applying prior art against claim 13 and

the dependent claims therefrom concerning the limitations of the Shift keys should require the Examiner to apply prior art pertaining to Shift keys only, as opposed to Alt keys, cursor keys or the like. It is respectfully submitted that the Examiner, as well as anyone of ordinary skill in the art and, in fact, even children having knowledge below one of ordinary skill in the art, know that there is a vast difference between these arrangements which makes any such positions taken by the Examiner inappropriate.

E. Rejection of Claim 15 based on Watanabe et al. in view of Harada et al. and Microsoft Press Computer Dictionary (3<sup>rd</sup> Edition)

Claim 15 requires that the plurality of Shift keys include four adjacent Shift keys. As claim 13 required the Shift keys to be grouped directly adjacent one another, this claim requires four Shift keys directly adjacent one another. Even in the combination presented by the Examiner, there is seen to be no basis to remove the escape and other keys in Watanabe to group four Shift keys directly adjacent one another in a lower central portion of an overall keyboard array.

F. Rejection of Claim 16 based on Watanabe et al. in view of Harada et al. and Microsoft Press Computer Dictionary (3<sup>rd</sup> Edition)

Claim 16 requires that the plurality of Shift keys be arranged in only two different rows on the keyboard. Although the exact arrangement in Watanabe et al. is not completely clear to the Applicant, it appears that the Shift and Alt keys are arranged in a single row. Again, Harada et al. would teach to provide the shift and Alt keys at laterally outward positions. Therefore, it is respectfully submitted that there is no teaching in the applied prior art to arrange the plurality of Shift keys in only two different rows on a keyboard, while still being located on the lower central portion of the array and grouped directly adjacent one another as required by the overall limitations of this claim.

G. Rejection of Claim 19 based on Watanabe et al. in view of Harada et al. and Microsoft Press Computer Dictionary (3<sup>rd</sup> Edition)

Claim 19 requires that at least one of the plurality of Shift keys constitutes a lower most key in the array. In Watanabe et al. there is an entire row located below the shift and Alt keys. In the rejection presented by the Examiner, it is therefore submitted that this limitation is not met.

H. Rejection of Claim 1 as Being Unpatentable Over Watanabe et al. in view Harada et al. and Microsoft Press Computer Dictionary (3<sup>rd</sup> Edition) and further in view of Montgomery (U.S. Patent No. 4,211,497)

As indicated above, independent claim 1 is a combination claim that includes all the limitations, word-for-word of independent claims 2, 7 and 13. Therefore, the arguments presented above, at least with respect to independent claim 7 and 13, directly carry forth to the rejection of claim 1 such that these arguments will not be reiterated here. Additionally, independent claim 1 requires that the letter keys in one row spell out at least three, consecutively arranged multi-letter words when read from left to right. To address this limitation, the Examiner has added the Montgomery reference to the multitude of other references and has stated that Montgomery "teaches a keyboard having two multi-letter words (ITHER)..." From this disclosure, it is stated that it would be obvious to modify Watanabe et al. to provide these multi-letter words in a single row.

Certainly, the Applicant is of the opinion that one of ordinary skill in the art would not merely consider rearranging letters on a keyboard on a whim. In fact, the manner in which Montgomery is arranging letters and number keys is quite incompatible with that set forth in Watanabe et al. as can be clearly seen from viewing the referenced keyboard structure shown in Figure 12 of Montgomery et al. and that of

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Figure 1 in Watanabe et al. In any event, with the Examiner relying upon these two embodiments, it is clear that this combination still only has two multi-letter words. However, without any teaching in the art, the Examiner has indicated that it would "be obvious to put three sequential common words in one row..." (emphasis added). The Examiner states that this modification would make it more convenient for a user to locate the common words, to increase typing speed and relocating the keys would not alter the function. It is respectfully submitted that none of the prior art suggests such a specific arrangement to help a user locate common words, or to increase typing speed. In fact, the embodiment of Montgomery et al. referenced by the Examiner only has six letters in a row such that the suggested "ITHEROF" sequential words made by the Examiner would not even fit on the row. Absent the teachings of the present case, it is respectfully submitted that one of ordinary skill in the art would not make such a modification. Furthermore, the Examiner coming up with the suggested "ITHEROF" out of thin air does not stem from any sound basis of establishing a proper prima facie case of obviousness.

I. Rejection of Claim 2 Under 35 U.S.C. §103 as Being Unpatentable Over Klauber (U.S. Patent No. 5,620,267) in View of U.S. Patent No. 4,211,497 to Montgomery

Claim 2 specifically requires at least three, consecutively arranged multi-letter words to be provided in the array of letter keys when read from left to right in a manner directly corresponding to that discussed above regarding certain limitations in combination claim 1. However, a different combination of references is being applied in rejecting claim 2. In any event, the Examiner clearly acknowledges that Klauber does not disclose such an arrangement. In addition, the Examiner recognizes that Montgomery, at best, discloses two multi-letter words. However, without any teaching in the art, the Examiner indicates that it would be obvious to put together three sequential common words in order to meet these limitations. It is respectfully submitted that, without a teaching in the art to this effect, a prima facie case of

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obviousness has not been established by the Examiner when considering the differences in accordance with *Graham v. Deere*.

J. Rejection of Claim 22 Under 35 U.S.C. §103 as Being Unpatentable Over Klauber (U.S. Patent No. 5,620,267) in View of U.S. Patent No. 4,211,497 to Montgomery

Claim 22 further requires that at least one of the multi-letter words is a four letter word and that another multi-letter word is at least a three letter word. The Examiner indicates that the Montgomery keyboard in Figure 18 has a line with seven letters to spell the words "IT" and "HERB". Of course, this only constitutes two multi-letter words. It is unclear how the Examiner is adding another multi-letter word, let alone a three letter word, to this overall combination in order to meet the specific limitations of this claim.

IV. Particular Comments Regarding Case Law Relied Upon by the Examiner

In substantially each of the rejections presented by the Examiner, the prior art, even as combined, fails to disclose certain aspects of the claimed invention. In these circumstances, the Examiner has simply indicated that it would be obvious to rearrange keys in various different fashions without any teachings in the art, while citing *In Re Japikse* as fully supporting a position that, since the function of a key would not be affected by changing the location of the key, a change of location is generally recognized as being held within the level of one of ordinary skill in the art. The Applicant respectfully disagrees with the Examiner's contention that it would be obvious to modify the cited references to reposition keys without any teaching in the art. First of all, as specifically laid out in the Background of the Invention of the subject application, the Applicant has shown that the position of keys is particularly important and does change a keyboard's function. For example, the QWERTY keyboard was specifically designed to slow down typists so they would not jam

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manual typewriters. Other arrangements have been proposed to speed up typing. Clearly there exist a number of patents issued on keyboards based on the arrangement of the keys thereon. If this position of the Examiner were correct, there would be many invalid patents in this field. The current invention is advantageously designed to make it easier to learn to type and thus the position of the keys are of great importance. This is in contradistinction to the case *In Re Japikse* cited by the Examiner, with this case specifically relating to the starting switch on a hydraulic power press. The moving of a starting switch in that particular instance did not modify the operation of the device. The moving of the key positions on a keyboard does modify a keyboard's operation. Therefore, the Examiner's reliance upon this case law is not understood and, in fact, it is respectfully submitted to be misplaced. Clearly, the arrangement of the keys in accordance with the present invention directly affects the ability of the keyboard to be mastered. We are not discussing the patentability of the present invention from a design standpoint, but from the standpoint of structural differences which affect the overall operation and usability of the keyboard. It is respectfully submitted that, based on the teachings in the known prior art, there are many differences between the present invention and the prior art which have only be gleaned from the disclosure of the present application in rejecting the limitations to these features.

### V. Final Comments/Summary

It is respectfully submitted that the Examiner has failed to establish a prima facie case of obviousness under 35 U.S.C. §103 in rejecting the claims in this application. Simply stated, none of the prior art teaches or suggests the invention sought to be patented, nor addresses the advantages obtained in arranging a keyboard in the specific manner set forth in accordance with the invention. It is clearly improper to simply pick and chose features of secondary references to apply the same to a base reference in merely attempting to meet the limitations of the claims. It is also respectfully submitted that the differences are clear and furthermore not disclosed

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or suggested in the prior art. These differences include at least the arrangement of three, consecutively arranged multi-letter words as read when left to right in the keyboard, the arrangement of the tab and backspace keys in a central location and in a row above the home row and/or the positioning of at least three Shift keys in a lower central portion of an array of keys, with the Shift keys being grouped directly adjacent one another in multiple rows and being adapted to be engaged by thumbs of a user. When read in light of the specification, it is respectfully submitted that each of these limitations bring to fruition the numerous advantages of the present invention. For at least these reasons, it is respectfully submitted that the Examiner's rejections should be reversed.

Respectfully requested,

A handwritten signature in black ink, appearing to read "Everett G. Diederiks, Jr.", written in a cursive style.

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**I CLAIM:**

1. (Thrice Amended) A keyboard for use in performing typing tasks comprising:  
a base having an upper side; and  
a plurality of keys arranged in an array, including multiple rows with one of the multiple rows being a home row, on the upper side of said base, said keys including letter keys, a tab key, a backspace key, at least three shift keys for establishing capital letters in combination with the letter keys, and at least one function key, each of said letter keys corresponding to a respective letter of an alphabet of a language, wherein said at least three shift keys are located in a lower central portion of said array, grouped directly adjacent one another, and arranged in at least two of the multiple rows, said at least three shift keys being adapted to be engaged by thumbs of a user, wherein one of said rows includes selected ones of said letter keys arranged to spell out at least three, consecutively arranged multi-letter words when read from left to right and wherein both the tab and backspace keys are centrally located within the letter keys and located in a row above the home row.
2. (Twice Amended) A keyboard for use in performing typing tasks comprising:  
a base having an upper side; and  
a plurality of keys arranged in an array, including multiple rows, on the upper side of said base, said keys including letter keys, a tab key, a backspace key, at least one shift key and at least one function key, each of said letter keys corresponding to a respective letter of an alphabet of a language, wherein one of said rows includes selected ones of said letter keys arranged to spell out at least three, consecutively arranged multi-letter words when read from left to right.
3. The keyboard according to claim 2, wherein the language is English and the selected ones of said keys are selected from the group consisting of "R", "E", "A", "D", "O", "N", "T", "H", "I" and "S".
4. Canceled.



5. (Once Amended) The keyboard according to claim 2, wherein the language is English and the three words comprise "READ", "ON" and "THIS".
6. The keyboard according to claim 5, wherein the one of said rows constitutes a home row in which fingers of a typist are adapted to be placed in an at rest condition.
7. (Twice Amended) A keyboard for use in performing typing tasks comprising:  
a base having an upper side; and  
a plurality of keys arranged in an array, including multiple rows with one of the multiple rows being a home row, on the upper side of said base, said keys including letter keys, a tab key, a backspace key, at least one shift key and at least one function key, each of said letter keys corresponding to a respective letter of an alphabet of a language, wherein both the tab and backspace keys are centrally located within the letter keys and located in a row above the home row.
8. The keyboard according to claim 7, wherein the tab key and the backspace key are located in the same row.
9. The keyboard according to claim 8, wherein the tab key is located to the left of the backspace key.
10. The keyboard according to claim 9, wherein the tab key is located directly adjacent the backspace key.
11. Canceled.

12. (Once Amended) The keyboard according to claim 7, wherein the tab key and the backspace key are located in a third row down from a top of said base.
13. (Thrice Amended) A keyboard for use in performing typing tasks comprising:  
a base having an upper side; and  
a plurality of keys arranged in an array, including multiple rows, on the upper side of said base, said keys including letter keys, a tab key, a backspace key, at least three shift keys for establishing capital letters in combination with the letter keys, and at least one function key, each of said letter keys corresponding to a respective letter of an alphabet of a language, wherein said at least three shift keys are located in a lower central portion of said array, grouped directly adjacent one another, and arranged in at least two of the multiple rows, said at least three shift keys being adapted to be engaged by thumbs of a user.
14. Canceled.
15. (Once Amended) The keyboard according to claim 13, wherein the plurality of shift keys includes four adjacent shift keys.
16. (Once Amended) The keyboard according to claim 13, wherein said plurality of shift keys are arranged in only two different rows on the keyboard.
17. (Once Amended) The keyboard according to claim 13, wherein said at least three separate shift keys are color coded.
18. (Once Amended) The keyboard according to claim 13, wherein two of said at least three separate shift keys perform identical functions.
19. The keyboard according to claim 13, wherein at least one of said plurality of shift keys constitutes a lower most key in the array.

20. The keyboard according to claim 13, further comprising:  
a scroll button located directly adjacent at least one of said plurality of shift keys.
21. The keyboard according to claim 8, wherein said same row is located directly above the home row.
22. The keyboard according to claim 2, wherein at least one of the multi-letter words is a four letter word and another of the multi-letter words is at least a three letter word.